PT 4000
Electrical Safety Test in the USA and Canada according to CAN/CSA - 22.2 No. 601.1 - M90

1 Visual inspection of basic unit

- Power cord
- Compare fuses to stated ratings of the PT 4000.
- Check position of voltage selector switch (120 - 127 VAC for US units)

2 Safety testing PT 4000 with Biotek Model 501

- **Warning**: These tests can expose personnel to hazardous electric shock and must be carried out with caution.
- Note: Do not plug the Biotek 501 Pro safety analyzer power cord into a line isolation monitor as inaccurate readings may occur.
- Plug the Biotek 501 Pro power cord into a live AC receptacle, place the power switch of the Biotek 501 Pro to the "1" or ON position and ensure that the keys marked "GROUND", "NEUTRAL" and "POLARITY" are in the NORMAL position.
- Note: If the corresponding red LEDs for Ground, Neutral, and Polarity are not lighted, they are in the normal position.

2.1 Chassis Resistance Testing

- Attach the ground lead from the red "Test lead" input to the ground hole of the AC test receptacle on the Biotek 501 Pro. Select the "Single lead" condition by ensuring that the "SINGLE/DUAL" key is not illuminated. Press the gray key marked "RESIST", then press the blue key marked "CAL". When the word CAL is no longer shown in the display window of the Biotek 501 Pro, you may proceed.
- Remove the red lead from the ground hole of the AC test receptacle and attach the alligator clip to the free end, leaving the other end plugged into the red "Test lead"

input of the Biotek 501 Pro with the "Single Lead" and "Resistance" conditions still selected.

- Plug the PT 4000 power cord into the test receptacle of the Biotek 501 Pro.
- Attach alligator clip to the PT 4000 so that it becomes contact to the inner grounded reflector:

- The resistance reading then shown on the Biotek 501 Pro is the "Chassis Resistance". Bend and exercise the power cord to check for intermittent reading.
- Maximum allowable test value:

Chassis Resistance	0.2 Ohm

2.2 Enclosure Leakage Current (Chassis Leakage Testing)

- Press the gray "LEAKAGE" key, leaving all other selections from the previous test the same.
- Switch on PT 4000 with both switches.
- Set up the Biotek 501 Pro for the following tests by using the white keys labeled "Ground", "Neutral" and "Polarity".
- Note: If the corresponding red LEDs for Ground, Neutral, and Polarity are not lighted, they are in the normal position.
- This is a measurement of the leakage current from the Chassis to earth ground.

- Maximum allowable test values under Normal Condition:

Normal Ground, Normal Polarity, Normal Neutral:	100 µA
Normal Ground, Reverse Polarity, Normal Neutral:	100 µA

(According to CAN/CSA - 22.2 No. 601.1 - M90, Sub-clause 19.3, Table IV)

- Maximum allowable test values under Single Fault Condition:

Open Ground, Normal Polarity, Normal Neutral:	500 µA, but not 0 µA
Open Ground, Reverse Polarity, Normal Neutral:	500 µA, but not 0 µA

(According to CAN/CSA - 22.2 No. 601.1 - M90, Sub-clause 19.3, Table IV)

2.3 Earth Leakage Current (Ground Wire Leakage Testing)

- Remove the red lead with the alligator clip from the PT 4000.
- Remove the alligator clip from the red test lead and plug this end into the green input jack "GROUND" on the back panel on the Biotek 501 Pro.
- Leave all other selections from the previous test the same.
- The PT4000 is still switched on.
- Set up the Biotek 501 Pro for the following tests by using the white keys labeled "Ground", "Neutral" and "Polarity".
- Note: If the corresponding red LEDs for Ground, Neutral, and Polarity are not lighted, they are in the normal position.
- This is a measurement of the leakage current flowing through the ground wire of the power cord.
- Maximum allowable test values under Normal Condition:

Open Ground, Normal Polarity, Normal Neutral:	500 µA, but not 0 µA
Open Ground, Reverse Polarity, Normal Neutral:	500 µA, but not 0 µA

(According to CAN/CSA - 22.2 No. 601.1 - M90, Sub-clause 19.3, Table IV)

- Maximum allowable test values under Single Fault Condition:

Open Ground, Normal Polarity, Open Neutral:	1000 µA
Open Ground, Reverse Polarity, Open Neutral:	1000 µA

(According to CAN/CSA - 22.2 No. 601.1 - M90, Sub-clause 19.3, Table IV)

- Switch off unit with both switches.

- Maximum allowable test values under Normal Condition, PT 4000 switched off:

Open Ground, Normal Polarity, Normal Neutral:	500 µA, but not 0 µA
Open Ground, Reverse Polarity, Normal Neutral:	500 µA, but not 0 µA

(According to CAN/CSA - 22.2 No. 601.1 - M90, Sub-clause 19.3, Table IV)
Rationale: On/Off switches are standby switches. The earth leakage current in normal condition may be higher with standby switches in off position.

- Disconnect power cord from the Biotek 501 Pro and remove the test equipment